

## Newton's Race

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Group Role: \_\_\_\_\_ Section: \_\_\_\_\_

### **Pre - Lab Questions:**

- 1) What is velocity?
  
  
  
  
  
  
  
  
  
  
- 2) What is acceleration?
  
  
  
  
  
  
  
  
  
  
- 3) What is the formula to find force?

### **Materials:**

4 meter sticks  
vehicle  
8 washers  
masking tape

### **Procedure:**

Step 1: Set up a ramp using meter sticks and several books. Place one end of the ramp on the books and line up the other end with a piece of masking tape on the floor.

Step 2: Place the vehicle at the top of your meter stick and roll it down the ramp. Use a meter stick to measure how far the vehicle rolls. Repeat this step for Trials 2 & 3.

Step 3: Add five washers to the vehicle and repeat the process from Step 2. Record your measurements in the chart. Be sure all the washers remain on the vehicle! Repeat this step for Trials 2 & 3.

Step 4: Add ten washers to the vehicle and repeat the process from Step 2. Record your measurements in the chart. Be sure all the washers remain on the vehicle! Repeat this step for Trials 2 & 3.

**Data:**

# of Washers	Distance (cm)			Average Distance
	Trial 1	Trial 2	Trial 3	
0				
4				
8				

**Analyze & Conclude:**

4) How does increasing mass (adding more washers) affect the force of objects in motion (the distance the vehicle rolls)? Explain your answer using data from the chart.

5) What would happen if you added sixteen washers to the car? Predict how far the car would roll.

6) Explain the results of your experiment in terms of Newton's 2nd Law of motion.